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ABSTRACT

This publication includes a variety of articles related to environmental education. Included are descriptions of environmental programs of the National Park Service in many different settings. Articles regarding the philosophy of the programs are also included. (RH)

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Incorporating Guideline

April
May
June 1975



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Trends in Environmental Education

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Environmental Education: A Cornerstone of Park Interpretation

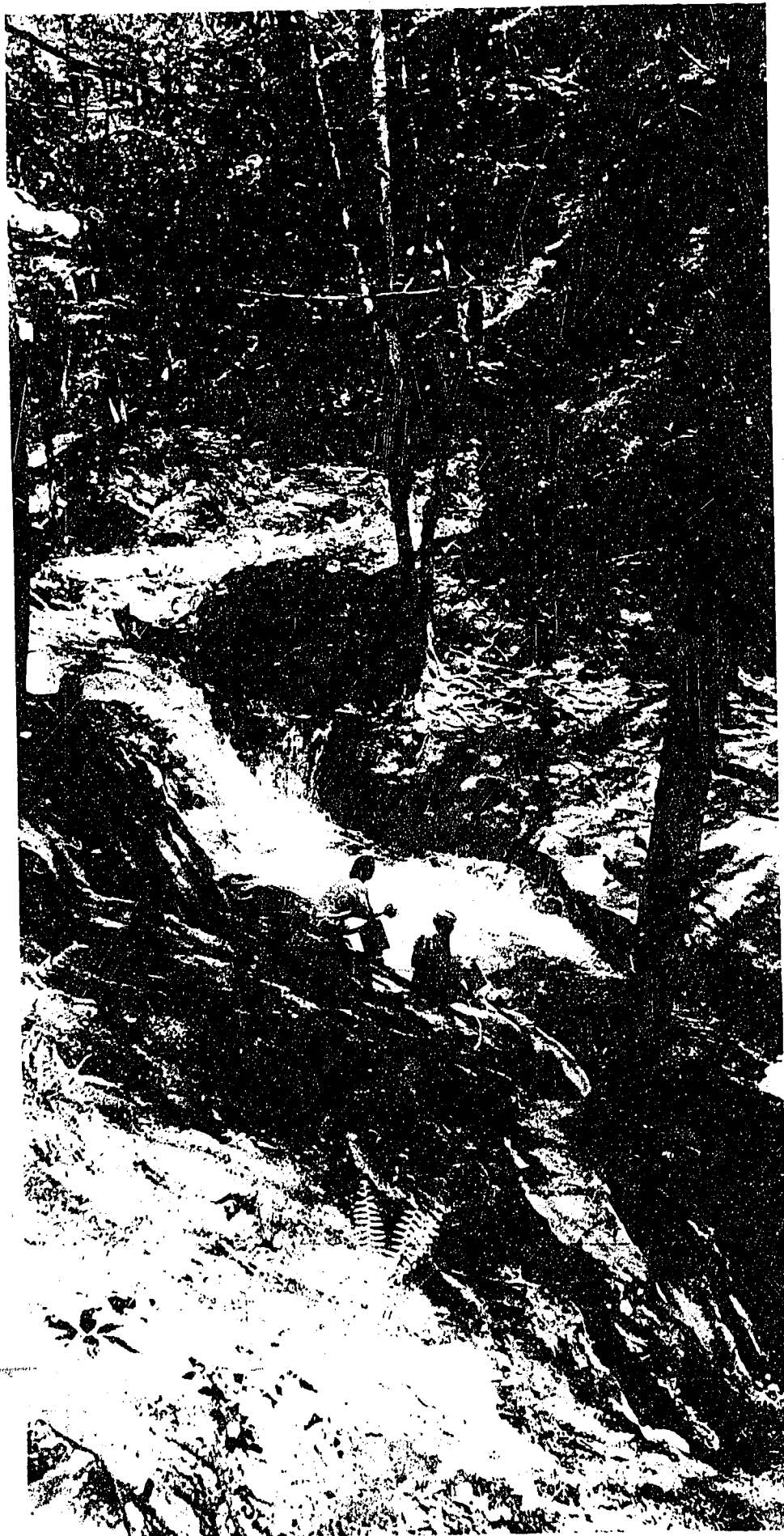
by Bill Dismore

"Of course environmental education is a part of our interpretive program—how could it be otherwise"? So pronounced a friend in the business of interpreting parks not long ago. His particular park did not happen to have a formal environmental education program for school classes. Yet to him it was obvious that an understanding of environmental relationships, including the human factor, is fundamental to any park story; that both the message and methods of environmental education could not help but be an underlying cornerstone of contemporary park interpretation.

Why, then, does the myth of separateness of the two functions somehow persist in the minds of more than a few park interpreters, managers, and environmental specialists? You sometimes hear that environmental education is fine for school groups but that it somehow does not fit into the interpretive theme of a particular park, as though environmental education were some sort of appendage that, depending on its relevance to specific park features, may or may not be attached to the whole. Not so, of course, and I would hope to make the case here for recognizing a oneness of philosophy and approach, for an integration of the spirit and carrying out of environmental education within the field of interpretation.

A brief review of how we have arrived at where we are today is in order. A formal program for interpreting national parks to visitors originated in the 1920's when it was recognized that parks presented an unparalleled opportunity for public education as well as serving a role as "pleasuring grounds." Interpretation in those days centered on acquainting visitors with the natural (and, later, historic) features of a park and providing first-hand explanations of these features. In ensuing years interpreters expanded their explanations to cover the interrelationships between the indigenous plants and animals, and brought into the equation the relationship with the parkland itself. But interpretation remained inwardly focused on resources in the immediate area of the park.

More than a generation later the nation abruptly awakened to a realization that all was not well with its land; Stewart Udall's "quiet crisis" had thundered upon the national consciousness. At the same time,





park managers were becoming acutely aware that their boundaries could hardly serve as barriers that would stem the tide of environmental degradation pressing on all sides from outside the parks. Parks no longer could be thought of as existing in a vacuum.

In the late 1960's the National Park Service began to move in two directions toward facing the environmental crisis. The first addressed the parks themselves, evolving from greater management concern for the park environment and the increasing pressure by visitors upon it. Environmental conditions within any given park were acknowledged as a prime influence on the quality of experience that a

visitor might enjoy. Therefore, if parks were to serve as outstanding examples of natural or historic environment free of disruptive impact by modern man, management would have to act on this premise: that parks must *do so as they said*.

But the Service also began to recognize that it had an opportunity as an instrument of the Nation's educational establishment to foster a national environmental consciousness among its visitors. This would be done through embodying a total-environment approach in its interpretive programs. Only by making parks themselves relevant to the evolving society of which they were part could the park system itself survive.

With the launching of the National Environmental Education Development (NEED) and National Environmental Study Area (NESA) programs in 1968, the Service extended its educational efforts beyond the traditional limits of park boundaries. Parklands would henceforth serve an additional purpose—places where students might take environmental concepts learned in the classroom and apply them to natural surroundings.

Meanwhile, traditional interpretation had evolved to the point of incorporating environmental awareness as one of its principal goals. Environmental awareness meant helping visitors to expand their perception of immediate surroundings—leading them to derive a fuller satisfaction from experiencing the exciting diversity of color, texture, sound and motions

of the world around them. A greater appreciation of natural and cultural surroundings and an understanding of the processes linking each element to the whole environment could lead to more responsible ecological behavior—both within and out of the park.

Achieving greater awareness often required stripping away the physical barriers that separate visitors from the park environment. And the great barrier of our time, paradoxically, has been our accustomed means of transportation. In the words of Douglas MacAgy from his poem "Turnabout in a Roundout,"

... A car is a seal of comfort
It is also a cell of culture
From behind its windows we joke our way through nature
Ours is a world apart, a peek-through world
But the safety glass is two-way.

So, one direction taken by sensitive modern day interpreters has been to guide visitors toward discovering that they must leave their "seal of comfort" in order to gain an enriching park experience. "Get them out of their cars and into the parks," became the watchword.

Unfortunately, an ingredient often missing in environmental awareness programs, at least in the natural areas, was the human element itself. But the living history interpretation programs that were evolving independently in parks across the country contributed much toward bridging this gap. Many of these historic role-playing and demonstration programs brought into focus how cultures and societies have been shaped by their environment and have influenced their natural surroundings. The individual's place in the total environment, from place in the food chain to position in the history of culture, took on new meaning as visitors were exposed to living history interpretation.

While living history interpretation related peoples of the past to historic environments, environmental educators were emphasizing the role of humans in today's environment.

The formal curricula developed for classroom students places heavy stress on human interdependence with the environment, showing the way for park interpreters to incorporate this in their resource-based interpretive presentations. Interpretation today, then, draws





from the spheres of both living history and environmental education in defining a new concept of environment for the visiting public.

Perhaps the greatest contribution of environmental education to the larger function of interpretation has been the injection of a new methodology—that of *involving* visitors in our interpretive events, not as mere spectators but as participants. Virtually all of the many new curricula are based on a tenet of direct interaction between student and nature. Steve Van Matre's approach, *Acclimatization*, (see p. 12) is just one good example where the stress is on immersing the whole person in the *feelings* of his or her surroundings. Van Matre has developed a technique of taking kids into the outdoor world and, through the framework of various perceptual exercises, leading them to discover and develop their own feelings for environment—what he calls the "interpretive encounter." But the youngsters don't think of it as learning—to them it is just plain fun.

If interpretation through immersion and discovery is fun and has lasting bene-

fits for kids, why not for adults? So parks have experimented with activities that would directly involve their visitors with natural surroundings. Two successful immersion programs developed a continent apart immediately come to mind: the "slough slog" at Everglades and the ecology float trips at Yosemite. There are now many others being offered in parks throughout the country. The new breed of interpreters are finding that the more visitors will participate by using all their senses, by making their own discoveries and by getting into the thick of any given environment, the more they will carry away from the experience.

But participation and involvement should not be thought of as limited to physical activities. If we are aiming toward shaping an environmentally conscious and concerned citizenry, we must involve our visitors' minds as well. The U.S. Forest Service, for example, has developed an environmental education curriculum that strives toward giving participants a basic understanding of ecological relationships, equipping them with mental process tools that enable them to develop their own criteria and conclusions on any particular environmental situation or problem. Park interpreters, too, are incor-

porating this approach, knowing that if visitors can take with them an increased understanding of natural processes when they leave the confines of the park, then, as citizens, they will be better able to make ecologically sound decisions as they vote on community issues, elect political representatives, and as they directly act upon the environment itself.

Revealing the intricacies of a park story, encouraging attitudes of respect and concern for the total environment and leading visitors to discover and think for themselves has become the accepted role of interpretation. Today, however, we are hearing of another horizon for park interpretation that goes beyond enjoyment and learning in the traditional sense. It is based on the supposition that parks are places that can offer a particular kind of experience seldom encountered in the modern technological world—a total personal involvement with the environment at hand.

Interest in the possibility of expanding interpretation into the area of personal



environmental involvement has been stimulated by the research of Dr. Arthur J. Deikman, a young San Francisco psychiatrist who has recently addressed his theories to some National Park Service interpreters. Deikman is concerned with the division of the human personality into two basic attitudes, or "modes," of behavior. He has shown that humans program their minds into one or the other of these two modes.

One, which he terms the "action" mode is the more prevalent, or dominant, in most Americans, who are largely concerned with problem solving. It is a state of mental and physical striving, a state of doing. In contrast, the "receptive" mode is that division of the personality which is reflective, which is contemplative rather than action oriented. A person who has programmed himself at any given moment in the receptive mode allows himself to be nourished through all his senses by his surroundings. If interpreters could help park visitors to call upon the receptive rather than the action mode of their personalities, their appreciation of park values might be considerably heightened.

Recognizing that humans have the capacity to shift into a receptive mode of consciousness enables interpreters to lead visitors into situations within a park where they can make the shift. It may be nothing more than leading people to contemplate and feel the richness of a particular setting of beauty in a park without pos-

ing or answering the traditional questions of how and why. A few of these kinds of experiences can powerfully shape a person's attitude toward environment and can be a beginning in developing a new personal value system.

Experiential interpretation has found particular appeal among our growing clientele of young adult visitors. This segment of our visiting public, who today are intrigued by a "back to nature" movement, always have tended to steer clear of traditional interpretive events. Yet as a group they are the very ones seeking to establish personal identities and to formulate personal value systems. Park interpretation can and must address itself to youth, and, as a very logical offshoot of the philosophy and methods of environmental education, experiential interpretation is proving to be one effective way of achieving it.

In the past decade we have been witnessing a quickening convergence of the goals and methods of environmental education with those of park interpretation. It seems to me that we have arrived at the focal point where they are one and the same. In any case, parks can no longer afford the luxury of dividing their resources between what has too often been two competing activities, for, in essence, neither competes with the other.

In the National Park Service a stated objective (from the soon to be republished NPS Administrative Policies) of our interpretive program is to communicate an understanding of the forces that shape the

environment, an awareness of the individual as an integral part of the environment, and man's dependency upon and responsibility for the quality of his environment. The objective is one that easily applies to state and local park interpretive programs as well. To achieve this objective requires that we first interest, then motivate the entire spectrum of park visitors.

In one sense the environmental education cornerstone is an avenue to what Freeman Tilden told us we ought to be doing a generation ago. He said, "Here lies the greatest challenge to the interpreter who works in the field: what to do; what to say; how to point the way; how to connect the visitor's own life with something, even one thing among all the custodial treasures; how finally to elicit from the aimless visitor the specific thought: 'This is something I believe I could get interested in.'"

Bill Dummire has been the Chief of Interpretation for the National Park Service since 1973 and is presently the Acting Director for Interpretation. His Division has the responsibility to represent at the Washington level all National Park Service interpreters, and to develop national policies and priorities for interpretive services conducted throughout the National Park System.

The environmental education program is one part of the overall interpretive operations of the National Park Service. This program has a two-fold aim: (1) to develop a public understanding of the forces that shape the total environment and (2) to produce individual awareness of man's dependency upon and responsibility for environmental quality. The Division of Interpretation works closely with the regional office staffs in coordinating current environmental education programs and in developing new programs.

The intent of this issue of TRENDS is to inform others of some of the various styles and contents of a few environmental education programs of the Service, and the philosophy that underlies these programs.

Roundtable on Environmental Education

The following roundtable discussion with Gary Everhardt, Director of the National Park Service explores some of the important issues surrounding the development of environmental education programs in parks, schools and in the community.

Joining Mr. Everhardt are: William Dunmire, Acting Director of Interpretation for the National Park Service; Dick Cunningham, Chief, Division of Interpretation, Cape Cod National Seashore in South Wellfleet, Massachusetts; Nancy Strader, an Environmental Education Specialist with the Klinge Urban Environmental Center of National Capital Parks in Washington, D. C.; and Sandy Walter, Interpretive Specialist with the New York Group, National Park Service.

Mr. Dunmire: Our thought today is that this would be a good opportunity to hear from the new Director your ideas about environmental education, and we've brought three people in who represent a good cross-section of field personnel who are involved in the interpretation of environmental education.

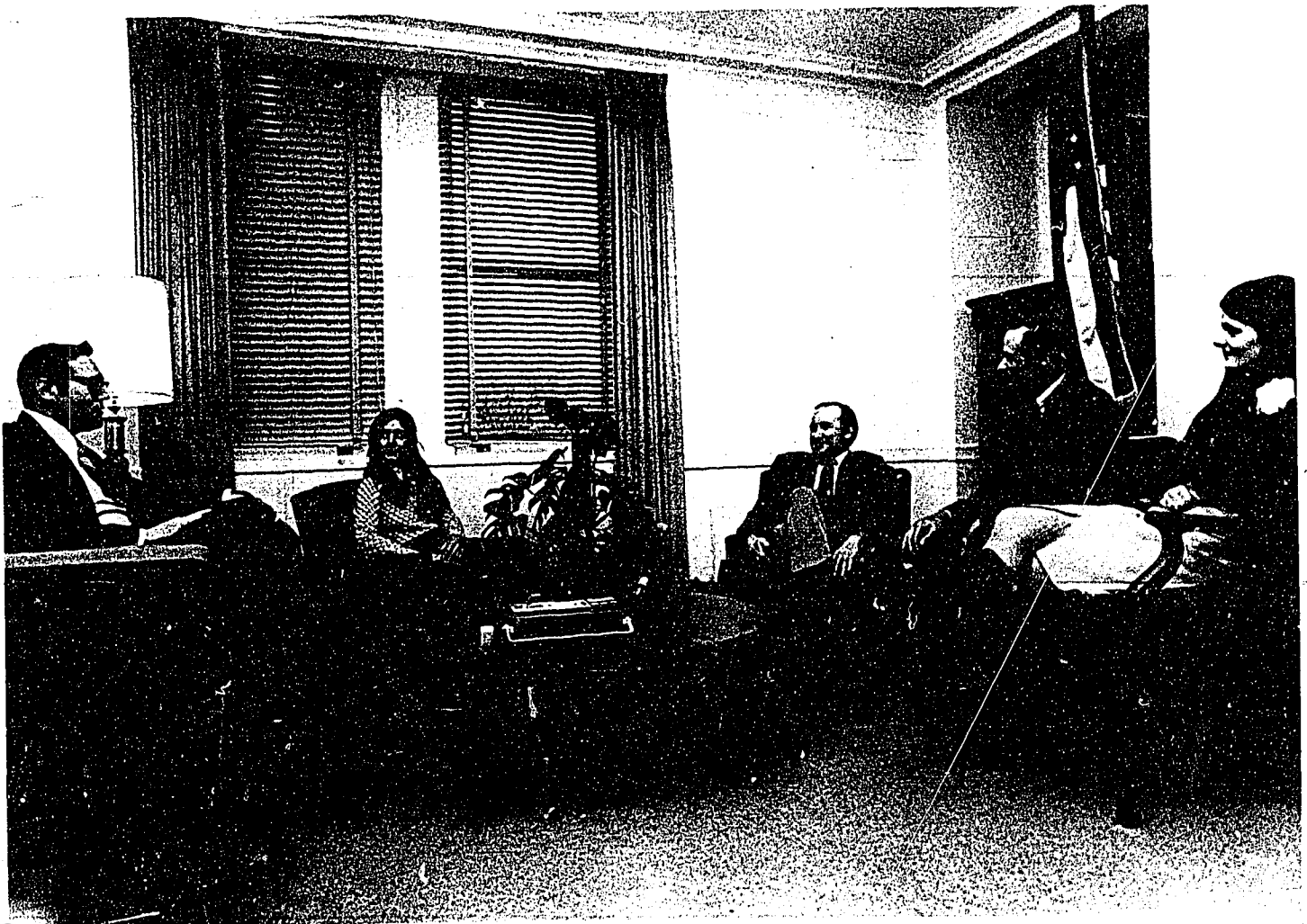
So maybe we could start with your giving some general thoughts as to how you see environmental education and its role and mission in the National Park Service.

Director Everhardt: One of the goals that we have set, as the new Director of the

National Park Service, is one that I hope is going to result in a renewed emphasis in the total umbrella that is spanned by interpretation. I think that in recent years we have suffered some cutbacks that have affected our effectiveness in interpretation. We hope to communicate to the field area a renewed emphasis, a new statement of our goals with respect to interpretation.

We think that we will see an exciting and a new time for people that are located in the parks, that are communicating the objective and the goals, what the purposes of these parks are in administering to the mind and the spirit of Americans as they visit a National Park Service area.

I feel environmental education is certainly one of the very important purposes





Director Everhardt

of our goals and objectives in interpretation.

I am very excited about the possibilities of giving young people the opportunity to associate the natural environment that surrounds them with every day practical kinds of experience under some kind of a curriculum, so that we can begin to shape their attitudes toward environment. In the future they are going to be making the important decisions about what happens to our land-managing agencies. The National Park Service is one of them along with others—the Bureau of Land Management, Army Corps of Engineers, Forest Service, as well as many of the state land-managing agencies.

Ms. Walter: Do you think we should encourage park interpreters to use the kind of techniques that have been developed in environmental education, more of the inquiry-discovery type of approaches than, say, more standard format?

Director Everhardt: Well, I think we should find some way to invite the general visitor to a park to become involved in environmental education. And certainly, I see that there is a great opportunity to utilize some of the techniques that have been developed in our interpretive programs with the visitor.

I think that one of the greatest opportunities I ever had, as Superintendent, was to attend some environmental rap sessions that we had in our campfire program and to view actions of the people, and the interplay that takes place—you just become a catalyst to get this thing started. It was of great benefit to the manage-

ment of the park in making some decisions about some problem areas that we had.

Mr. Cunningham: From my own experience, Mr. Everhardt, I think ever since the beginning, in the early development of the environmental education program, it has been the general public or the schools themselves who realized the significance of what we had to offer in environmental education. To me it seems that some of the greatest obstacles are within our own park family. What I'm wondering is what we can do to re-emphasize the significance of environmental education as a part of our total park program, to our own people.

Director Everhardt: I think you are right on that, Dick. I would like to say that if there is any way I can convince people through this roundtable discussion, that anyone who has an idea about environmental education, and wants some assistance on setting up an environmental education center, either through a cooperative agreement in their park or nearby in the region, that person is going to have every support that I as the Director can give him.

This is not to say that everybody's going to be totally successful in their efforts because there are no doubt some constraints or restraints that would have a bearing on individual situations. But, I would be hopeful that this office and the regional offices, would give total support to the idea of environmental education.

Mr. Dunmire: I think one of our own problems is that our park family looks at environmental education as just talking to school groups and what we're seeing here, all of us, is that this is a much bigger concern. It's both a philosophy and perhaps a method of carrying out that philosophy.

Ms. Walter: What are some of the environmental education programs you feel are the ones that are really right on target?

Director Everhardt: I can only speak from my own experience, Sandy.

I have just recently come from a park where we did start an environmental education center from a facility that was made available to us. We had an environmental education specialist who had other duties

and so we assigned the primary responsibility of coordinating an environmental education program through a cooperative agreement with a science school.

The program was cost free to the government. The science school even took over certain maintenance responsibilities for the facility. There was a charge to the students who came there. We were trying to encourage attendance by an entire class, and were hopeful of building a grant type of program whereby all the students could attend even if the parents were unable to afford it or the school itself was unable to afford it.

The encouraging thing about this program was the interest generated by the young people who were allowed to stay in the park environment for a week, and were given a certain kind of experiment to carry out. They had projects to follow up on that tended to be of their choosing. They weren't commanded to do this, it was something that stimulated their interest. The guidance that was given them was important to relate their experiments and experiences to the natural environment, to indicate to them the role or the place that man has among the many other factors of natural environment, so that they would be more aware of it. The ultimate objective was to give them the background knowledge to enable them to make informed decisions about the environment.

Another offshoot that I think was a real

Ms. Walter





Mr. Cunningham

advantage was the way these students were affecting their parents. They went back and talked about some of the difficult issues that were facing that park, facing that community, and also facing that region, in many areas that related to the management of land.

Ms. Walter: I don't think we should ever take just the park story by itself. In New York for example we relate the parks to the significant things in the New York environment.

Director Everhardt: Well, I think you are right. You know, parks cannot exist alone. They have a very defined and definite relationship with the community, with the area surrounding them, with the region that they exist in. I think the environmental education message must be interrelated to all of those different communities, inside and outside the parks, and how they affect each other as they make certain decisions and take certain courses of action.

Mr. Cunningham: I would appreciate any thought you might have on what we could do with teachers, because these are the individuals that year after year are going to be reaching the children that we ourselves cannot reach.

Director Everhardt: I think that one of the programs should include bringing teachers onto the scene. Certainly, the teachers in the situation that I was associated with did come and did stay with the students during the period of time that they were there. I would see no reason that we couldn't develop a program that would even make an approach like this more widespread, as you say, primarily defined and developed for the teachers themselves.

Mr. Cunningham: Including the teachers that are in college.

Director Everhardt: Right. We had arrangements with the colleges in the region surrounding Teton, the five states contiguous to Wyoming, for their students who were aspiring to become professional teachers involved in the Teton Program.

We had teachers coming in for three-day workshops, lectures, and seminars with our park personnel and the Teton Center staff working and participating in the programs.

And I can only say that when we first proposed this idea there was tremendous opposition to it. We were removing facilities from an operation that had been of some economic advantage to the area and a lot of people felt the Service was getting into an area of education that we shouldn't be in. To me there's such a fine line between interpretation and environmental education that I don't know how you can separate the two. After two years of operating, it was amazing to see the change in attitudes. I don't know whether the young kids, the young people, had that much of an affect or whether people just had an open mind to the point where they could see the great advantages that were being achieved and that changed their attitudes.

Ms. Walter: One of the things we are doing in New York in our environmental education center is working on a fifty-fifty basis with the New York City public school system, in that we put one person in and they put one person in; and we put X amount of dollars in and they put X amount of dollars in. How do you feel about those kinds of very closely cooperative programs?

Director Everhardt: You know, I'd be in favor of any new ideas that get the job done.

I think there must be lots of ways to approach it. We used one, you have another, Dick has an approach, Nancy has an approach to it—I would like to see all of these ideas come in and be massaged and ferment a little bit into something that we at the Washington level could share Servicewide.

Ms. Strader: This issue of TRENDS is

one way of doing it, finding out who is doing what in what locale and matching it with similar kinds of needs and similar regions.

It seems to me there is a crying need not only within the Park Service to do that, to have some kinds of exchange of information, but to find out if other government agencies are doing the same things. We're all trying for the same goals, all trying to spread the good news.

Mr. Cunningham: There are many private organizations and conservation groups that have very good, viable environmental education programs which we need to know more about, because they have things to offer, just as we certainly have many things to offer.

We need a better grasp of what's going on with other people and their environmental education programs, too.

Mr. Dunmire: Well, Gary, in looking back over the Park Service's broad spectrum of environmental education programs, have you felt that there are some particular areas on which we should be focusing attention? You've mentioned young people and your feelings for the importance of communicating to young people. Are there other things that you would hope to see?

Director Everhardt: I would challenge all of the people that are involved in communications or interpretation to think about ideas of how to inform people about the environment they are going to move

Ms. Strader





Mr. Dunmire

into when they plan a trip to a National Park area.

To me it becomes a very important thing that we find the mechanism to communicate with this potential visitor long before he gets there. I think a lot of our problems are that people just aren't well prepared at that late stage when we give them that interpretive folder or we give them that brochure on the park at the entrance gate. The guy is already there, and he has too short a visit planned and has many things already pre-determined that he's going to do while he's there.

I think that we should start thinking about what kind of uses are appropriate in the various areas that we are challenged and mandated by Congress, by the President, by the Secretary, to protect and use as part of the National Park System.

For example, I would be hopeful that within the next few years, our interpreters could communicate some thought about an energy interpretive program. What could be a better idea than having some of our facilities open for interpretation and review where energy conservation and the operation of the building is the paramount consideration in its design and its construction?

So we are now just waiting for the person that comes out of the organization with ideas in this direction. I think that would be a tremendous challenge and a tremendous opportunity to do something so beneficial for the well-being of all Americans.

Mr. Cunningham: Maybe in the design of some of these new areas that are

coming into the System, like Cape Canaveral, certain energy solutions can be designed into the visitor center operation, and headquarters operation like solar energy, and--

Ms. Strader: It doesn't have to be a new situation such as that.

Glen Echo Park has got already a new site, as I understand it, for using solar energy and we hope to redesign an interpretive program for Glen Echo so people coming to the park will not only have their bodies warmed by solar energy, but can see it, understand what's happening, and come away from it with an enriched experience.

Mr. Cunningham: At least some people feel that environmental education is an appropriate thing for a natural area or a recreation area, but how does it fit it into an historic site? I know some historians have qualms about that.

Director Everhardt: Well, certainly one of the great benefits of the historical areas is to have those opportunities to interpret that historic legacy to the people of today.

Because I think through history we not only learn, but we also derive a certain amount of hope for our future attitudes and our future actions.

I would hope that there would be ways found that our interpreters could involve themselves into an environmental education program with the community or within the region in some fashion.

Mr. Dunmire: How about weaving environmental understanding into the interpretation of the historic site itself?

Director Everhardt: The theme of environmental education, it seems to me, would have untold opportunities to weave back and forth within the historic message an environmental relationship both inside and outside the community.

Ms. Walter: Maybe we should instead call it an historical education program for school children, using the same sort of techniques that we use in environmental education—discovery, project-oriented types of programs. History is environmental education.

Ms. Strader: And all the kinds of exciting things that you could do to involve children in living history. Kids could simulate those kinds of things in an educational program, using the techniques of environmental education.

Mr. Dunmire: Some superintendents or some interpreters question whether it's even permissible to go outside the immediate confines of a park to a school. Would you comment on that suggestion one way or the other?

Director Everhardt: Well, it's hard for me to rationalize how they would conduct their program solely inside the park.

I certainly see no constraints being placed on a manager. And I wouldn't necessarily classify the manager as just the superintendent alone. It might mean the person who is in charge of interpretation, the uniformed ranger division, maybe even your chief of maintenance, or maybe even your administrative officer. I don't think there would be constraints placed on these people in going to a school and conducting some kind of a program in environmental education or interpretation or any program that relates what our goals are, what our purposes are, how we relate to that environment.

Mr. Dunmire: Well, Gary, we've heard some very positive words from you today on the subject of interpretation and environmental education as a part of our whole interpretive effort. It certainly has been a privilege for us to have shared your thoughts at such an early time in your new administration.

Director Everhardt: Well, I appreciate the opportunity to see each of you.

I only want to say that I guess that maybe somebody will measure my success some day, and I think it's going to be measured by the opportunity for input that the people in the National Park Service have, the feeling they have that they can try innovative things and can experiment a little. Those programs that are successful we will expand upon; those that are unsuccessful, well, we can consider them the better part of a learning experience.

As I have said before, I want to give everybody the opportunity to share in the direction and the establishment of our goals and our priorities in the National Park System because it's as much a part of each of you and each employee as it is myself.

Good luck with your programs.

Conceptual Framework for Building Interpretive Programs

Environmental Dimensions

by Doug Evans

Environmental Dimensions

The Four "R's" of Education

The Strands Concepts

A Process Approach to Education



Since the earliest days of the Environmental Age, interpreters have exhibited confusion about environmental education versus interpretation. Although vaguely associated with interpretation, our initial over-reaction was to identify environmental education as a distinct program. Interpreters with few or no qualifications were thrown into the new specialty. (Some managers incorrectly assumed a professional synonymy between interpretation and environmental education.) The program and its objectives were poorly defined and even more poorly articulated. Much of the fog has since cleared, but

even to this day we grope for a common definition of environmental education.

Now, that ubiquitous pendulum of over-reaction is beginning its inevitable swing towards the center, and sighs of relief can be heard throughout the ranks, "At last! Back to interpretation!" But now, thanks to the environmania of the past decade, it's back to interpretation which is greatly enriched by a much deeper environmental dimension.

Interpreters have traditionally perceived interpretation in two dimensions: factual and conceptual. The factual dimensions comprise the purely informational aspects of interpretation such as directions, distances, dimensions, statistics, names of places and objects, etc. Although fundamental to any interpretive effort, the factual dimension is the least meaningful



and the most mechanical level of interpretation. The conceptual dimension deals with ideas. It coalesces facts and details into a unified whole, and relates them in ways meaningful to visitors. This is the ecological dimension which gives meaning and body to interpretation. The Strands approach is a good example of conceptual interpretation (see story on Strands, p.15).

There has always been a third dimension to interpretation, that of environmental morality. We haven't always been fully conscious of this dimension, and it rarely has received its deserved emphasis. The environmental dimension transcends the mere communication of facts and ideas. It

is the human dimension that adds soul to the body of interpretation. This dimension doesn't expose so much as it challenges and questions. Its questions have a heavy weight of "you" in them, and help to lead visitors toward a greater awareness of their own thoughts and feelings. They see how their lives are related to the web of nature, and how human actions can alter that relationship. They are asked to examine alternative actions, and to consider their consequences.

Let's look at some examples of the three interpretive dimensions.

Factual Dimension

Kangaroo rats live here.

Conceptual Dimension

Kangaroo rats are well adapted, through natural evolution, to thrive in this desert environment.

Environmental Dimension

If you were a park manager, would you be concerned about kangaroo rats? Why? Of what value are they? How would you manage them and their habitat?

Factual Dimension

Lake Mead National Recreation Area gets over 5,000,000 visits per year.

Conceptual Dimension

Crowded city living produces tension, frustration, and distrust. Parks can provide respite from the ills of overcrowding. But, now, parks are getting crowded, too.

Environmental Dimension

How do you feel about crowded beaches and park roads? Do you mind waiting in

line to launch your boat? Or to use the restrooms? If you were a park manager would you limit the area's use to insure uncrowded recreation? How?

Factual Dimension

Bighorn sheep live in these mountains.

Conceptual Dimension

Bighorn populations are controlled by water and food supplies, disease, and predation.

Environmental Dimension

How do you feel about trophy hunting? Or predator control? Should every herd be hunted? Are non-hunted animals of benefit to man? How?

The environmental dimension of interpretation encourages visitors to rely on their own abilities to evaluate environmental questions. Rather than appealing to authority to make these value judgments for them, they are exposed to another channel of a more self-directed nature. And, the conclusions they reach may depend to a large degree on your skills as an interpreter in all three dimensions of interpretation.

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The Four "R's" of Education

by Steve Van Matre

August, Isle Royale, 1974

The sun has burst out from under a day's growth of gray clouds to bathe the conifers across the bay with a soft, golden light. As Chris grabs his journal and heads down the path toward his newly discovered magic spot, I point to the horizon. In the distance, a glistening streamer of gulls are riding the winds. When they're broadside to us they appear to be white flakes, then disappear suddenly as they turn from the sunlight toward the ridge. Earlier in the afternoon I had suggested to Chris that perhaps he would like to try out some of our techniques for drawing closer to the natural world. Now, after locating a secret place over on the rocky shoreline, he is going off to experiment on his own.

When Chris returned that evening, everyone could tell that his immersion had been a success. As we talked a bit about the experience, his words echoed those from other trips and times: "I never liked English much in school, but sitting out here on the rocks by yourself you just want to put it all down." At fifteen, Chris had never known the thrill of flowing with the sights and sounds and smells of a wild evening. Sadly, he had never stilled himself and let the processes of life sweep him up in their endless supply of beauty and pattern. Chris had seen the natural world, but he had never absorbed its feeling.



All photos this article courtesy Mr. Van Matre



The most pressing environmental issue of our times is this need to help people reawaken their innate sensitivity towards life. On a recent television interview I was asked whether environmental education isn't superfluous in view of the current and strong emphasis upon getting back to the basics or the three R's in education? My answer was, "No," for getting back to the basics is the whole point of environmental education. What could be more basic than an understanding of—and a feeling for—the processes which govern our existence on this planet?

Surely, environmental education is as important as a mental summation of abstract symbols, or the cognition of a certain arrangement of lines and curves. We say that we want our youngsters to be able to read and to make correct monetary change, but shouldn't we first wish them to be aware of their own role in our planet's processes of life? Common sense tells us that those who don't feel anything probably won't do anything. If you can't feel the heat of a stove-top you probably won't pull away your hand. By the same token, if

you don't feel anything for a forest community, you probably won't hasten to object to its demise. Pointedly, re-sensitizing ourselves to the processes of life must become the fourth 'R' of education.

For many people environmental education is viewed not as a basic, but rather as a stepchild of education. Again and again it turns up focusing upon the nomenclature of existence without being tempered by activities which address the feelings of those it is meant to serve. The results have placed much of our environmental education in an affective vacuum.

We have been led to believe that one should teach substantive content and hide feelings, as if feelings can thereby be separated from learning. Not so. We learn best what we feel best about learning. We pursue most things in life because of the good feelings they give us, be they people, places, positions or possessions. Accordingly, we are defeating our purpose if we

ignore that which makes learning meaningful. It is true that the cognitive realm of education continues to receive much attention, but the affective realm may well prove to be the Cinderella of education in the decades ahead.

At the heart of those who evidence great environmental concern you will invariably find a well-developed awareness and appreciation of life's natural systems. Ten years ago a group of us set out to help young people develop such awareness—*while at the same time* helping them build a conceptual understanding of the basic processes upon which these systems are organized and operate. It was our desire to help young people build a framework for the environmental decision-making that comes with growth. In some sense we followed Maslow's lead in looking at those we considered to be healthy (vis-à-vis environmental awareness) and then set out to help others gain such attitudes and understandings. We did not directly attack the problem of water pollution or land planning or recycling wastes, but endeavored to help our youngsters put together the matrix out of which positive concern for these issues would naturally evolve. Within the scope of this article it is not possible to convey very much of the results of our re-sensitizing work, but here are a few basic tools that we have found successful for helping people recognize and amplify their feelings and attitudes:

Sharing Circles

After many of our learning activities, particularly ones which focus upon a conceptual understanding, such as the interpretive encounters, we form a sharing circle. The group joins hands then pulls together in a tight circle before sitting down. The leader begins by asking everyone to complete a given statement according to their feelings, e.g., "The feeling today that I would like to recapture was . . ." or "I felt most uncomfortable today with . . .".

Each person repeats the first portion before filling in his or her thoughts. After the first round the circle is opened for general expression or the leader may ask for another completion which probes a bit deeper into the reasons for the initial comments. Here are some opening examples and possible second-round choices: The neatest thing for me today was . . .



I thought it was neat because it made me feel . . .

The thing that I would most enjoy doing again was . . .

I wish everyone could do it because . . .

The feeling today that I would most like to share was . . .

One thing that I could do to share that feeling would be . . .
 everything that I have seen today. I am closest to . . .

Someday, I want my children to feel the same because . . .

Personal Journals

Providing individual journals (or notebooks, sketchbooks or logs) has become a major part of our programming. Their value is in expressing and clarifying feelings. Sometimes we ask for volunteers to share something from their journals as we sit around a small fire in the evening, or we request that they leave them with us at the end of the experience, but the journals are always private and never seen without permission.

It is important to note that we don't require people to write; we suggest and encourage the act of writing. In addition, we add social inserts to the journals (quotes, observations) which encourage both access inside and, at least, momentary reflection. They are usually put together by the staff. A special cover, a stimulating reading clipped inside, blockprinted de-

signs, a slipcase or pouch—all help provide an air of importance, care, and concern. Finally, a formal, almost ceremonial, atmosphere surrounds their distribution.

In most cases we ask everyone to find a "magic spot," a special place or niche, where they can go each day to sit and be alone—to write, to contemplate, to just "let it be." If summer set times are set aside during the day, solitude and natural observation, more and more people will use their journals. Above all, if the leaders take care to tend to their own journals, the group is likely to follow suit.

Sensory Strategies

The importance of these activities in this category lies in both the doing and the telling. Their goal is to heighten one's sense of a personal relationship with all life. These activities provide a first-hand, often empathetic contact with the natural world. After the various experiences, the feelings of the participants are amplified in both formal and informal situations (the underlying premise being that shared experiences produce shared values). Culminating activities used have included a "sharing circle," a "gallery" of sketches made during an activity, or having everyone go off to sit shoulder-to-shoulder with a partner and tell one another about personal discoveries.

Getting to know a tree

A group is led into a wooded area while blindfolded. Everyone finds a tree and proceeds to get to know it without seeing it. After returning to the starting point, everyone removes their blindfold and sees if they can go back and locate their personal, "one-of-a-kind" tree.

Making friends with a plant

Everyone finds a single plant that they would like to have as a friend. They spend at least fifteen minutes quietly examining their discovery. Then everyone introduces their new friend to the group. The punch line is that whenever they return to the spot they now know that a friend of theirs is waiting.

Hanging around with a frog

Each member of the group selects an animal that he or she would like to spend an hour or more with (frogs are particularly good). The idea is just to spend some time with one animal. Sit and watch it. Follow it around. Try to imagine being inside its skin: How does it see the world? Share a few moments of life with it. Everything is unique.

One final note: experiences like these are designed primarily to expose and strengthen *feelings* for the natural world through direct contact. The activities are not so much values-clarifying as they are values-building. Why? Indications are that people have very few *values* that they are willing to act upon with any degree of regularity. Thus, to instill environmental values amongst the rather eclectic assortment that each of us carries around will take much more than a few of the indoors, classroom-type activities now popular. At their best such values-clarifying techniques appear to illuminate the existence and degree of values, but developing and strengthening those values appears to come from immediate, most often shared, experience. We believe that re-sensitizing people to the natural world through direct, purposeful activities will lead to the development of individual values that reflect a personal cherishing of all life.

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The Strands Concepts

by Glenn L. Hinsdale

The Strands concepts, which form the conceptual framework for the National Environmental Education Development (NEED) Program, are based on the premise that people learn and think in the context of *Similarities and Varieties, Patterns, Interrelationships and Interdependencies, Continuity and Change, and Adaptation and Evolution*. All the experiences of man are included in these concepts. They are intuitively discovered by children in the process of normal development. Any teaching-learning experience will therefore be most effective if what is taught is taught in harmony with these early, self-developed systems for coping—the Strands concepts. By learning to use them deliberately, as conscious-level tools, the child will retain more insights and achieve a heightened sense of values. The Strands can be used to teach any subject matter. Here is a brief description of the concepts and their relationships to our everyday lives.

Similarities and Varieties

People acquire citizenship on earth by being born. No one remembers being born, and yet, some people are old enough to consider birth in the abstract. They know that birth is a well safeguarded process. It occurs in the presence of instinctive parental behavior, it is usually surrounded by a highly refined technology, a skilled medical staff, and an environment that orders an impressively high socialization. However, the event is entirely different for a child experiencing the trauma of birth. He has just been summarily ejected from an environment he considered perfect. He has no assurances, no intelligent insights—no understandings that his mother's helpers and technology are good. He is cold and exposed and threatened and outraged. Instinctively, he wants to survive, and to that end he bends his entire surviving ganglion in his small, intense, body!

Of the many incredibly swift, complex learning activities that occur in the first hours or days of independent life, few yield to simple observation or casual description. Of those that do, the child's complete identification of its mother is the most interesting. With only his sensory equipment for tools—and those not yet fully functional—he imprints himself with the most intimate physical and psychological components of his mother. This is often accomplished in an atmosphere saturated with females, but the infant quickly learns that while they are all quite similar to mother, they are also different, and for many purposes they are not interchangeable with her.

Yet, these other females are useful, and the child learns ways to communicate his needs to them. Father, in apposition to fatherlike figures, is also soon identified. As perception develops, cascades of stimuli from all parts of the child's animate and inanimate environment are avidly processed—processed on arrival into two piles: a catalog of similarities and a catalog of varieties. On this basis—comparison and differentiation, the child copes with his environment and learns to manipulate it effectively.

Patterns

To be accosted by a strange toddler and accused of being his 'mommy' or 'daddy' is startling and often embarrassing. Still, it is a common occurrence. Why does a child who can usually quickly sort his real parents from a large sampling make such a mistake?

By the time a child has reached the age of nine to eighteen months, he has experienced many stimuli. He is increasingly encountering new ones to which he wishes to make immediate response—as in greeting a parent. Confronted with an individual who bears a strong parental resemblance, the child feels uncertain, but sorting through his now cumbersome catalog of similarities and varieties to make a positive identification is tedious. The child is frustrated by the process and bored with the time it takes. As older children do in thousands of classrooms every day, when process fails and boredom prevails, he guesses! However,

wrong guesses bring unpleasant, negative responses. The negative results of too much guessing begins to force changes in the system that until now has served so well. Thus, of necessity, the child refines his procedures by inventing the concept of patterns. Patterns dramatically condense the content of similarity-variety catalogs. A pattern is a template—a predigested, permanently memorized set of information that serves as a model or stereotype for the testing of new stimuli. Now, when a parent prospect appears, he can be checked against a mental template synthesized from all the over-learned attributes of the parent. If there is some point at which the candidate does not conform—voice, eye color, size, etc.—that attribute is immediately obvious as a nonfit. Judgment can quickly be made without reference to an inventory of parts because the child's creative attention is now focused on only that small nonconforming fraction of the total stimuli radiated by the event. Later, this technique will allow routine handling of complete episodes—even whole days—because they conform to elaborate templates perfected through long use. Patterns accelerate process and save much energy, but they can be allowed to rule and limit lives too much!

Interrelationship and Interdependence

High voltage tension grips the delivery room if, at the moment of birth, a new child does not react vigorously to the trauma of that experience. He is immediately recognized as a problem and becomes the instant center of great anxiety

and concern. We know the child requires special handling if he is to survive. There are calls for resuscitative equipment and special procedures.

All life forms interact with and are dependent upon their environment. From the moment of conception a child is captive to the natural laws of interrelationship and interdependence. If an individual life is to be successful, it must be the product of constant improvement in the quality and scope of the interrelationships and interdependencies which shape it. Each individual must learn to effectively manage his relationships with Spaceship Earth and its other residents. This is the whole business of education.

Continuity and Change

In freshman psychology, students learn that man's basic needs are food, shelter, love, security, procreation, etc. The lists vary. While many people spend lifetimes in pursuit of such basic goals, for most there is time also for sublimated levels of concern. People also want spiritual fulfillment, professional competency, a degree of self-indulgence, creativity, public service--the list is almost endless. All have unique motivations for selecting and pursuing these secondary goals, but they do have a common denominator--they must all contribute to the continuity of life! Continuity is provided by the eternal verities. Continuity is the sun rising and setting reliably each day; it is firm concepts of good, bad, home, God, mother, apple pie, philosophy, etc. Such convictions are essential to mental, physical and emotional stability. By far the greater portion of the average person's total life energy is devoted to the acquisition and maintenance of his continuities.



Photo Van Matre

Some continuities, held too tightly, too long, become obsolescences which eventually seriously reduce the quality of interrelationships and interdependencies.

His preoccupation with the maintenance of cherished continuities underscores man's endemic insecurity in the face of change. Change threatens continuity! Change demands energy, and people do not lightly yield their life energy. At least on the subliminal, reactive levels, change is bad, by simple, universal definition! Much time is spent in mutual reassurances that change can be good—even actively desired—but, in truth, it is usually suspect and accepted reluctantly unless the benefits are real, immediate and fully compensating.

Too much change too quickly can be dangerous! Even as obsolescence interferes with competency at one end of the continuum, so an unacceptable rate of change at the other can bring about aberrant behavior that may culminate in personality disintegration. More broadly, too-rapid changes, threatening too many continuities, can result in the failure of economic, political and philosophical systems, and cause wars. For each of us there is a personal fulcrum on which this continuum between obsolescence and total chaos is delicately balanced and daily maintained at the point of maximum personal comfort, because man's degree of tolerance for change is variable, as is his essential degree of continuity, on any given day! Familiarity—through education—with the nature and mechanics of the process of acquiring and maintaining this equilibrium enhances personal stability and facilitates its maintenance. Only when this facility has been personally achieved is an individual

equipped to contribute intelligently to the placement and maintenance of the collective fulcrum of his society.

Adaptation and Evolution

Science fiction has often presented the hypothesis of time travel. Unexpected, instantaneous transport through a significant time span, however, would certainly result in a disoriented, nonfunctional person. Confused, frightened, uncomprehending of his new environmental relationships, the individual would wish most desperately to be back in an old, familiar context again. Yet, ten years ago, all mankind was as poorly prepared as that for what is transpiring in the world today! Instead of time travel, however, people have lived the intervening years, making daily incremental changes in behavior that compensated for small daily changes in their environment. Most of these behavioral changes were not individually noticed, but they continuously provided retention of orientation and permitted subtle shifts in responses to new stimuli—through the process of shedding a few obsolescences and picking up a few new skills. In sum, adaptation has occurred. Man is still coping, but nothing remains unchanged.

In the early Eocene days of mammalian life, there was, among the grasses of some precontinent, a fox-sized animal, the Eohippus, scurrying about on tippytoes—earnestly avoiding predators, finding food and coping with the climate. So dedicated was his effort that millions of years went by, as did impressive but unnoticed changes in predatory patterns, food supplies and climate. And still Tippytoes survived.

In the last flicker of an instant in the age of mammals, when humans came on the scene, some of the more clever of them found skeletons of Tippytoes, and, in moments of insight saw patterns emerge. Except for the vast difference in size, Eohippus fitted the template of the modern horse! However, with the success of

Eohippus' adaptation to eons of changing environments came the loss of virtually all traces of his personality and physical identity. Only the experts could trace his history.

Is it possible that some future sequence of events might permit a modern Percheron to experience the history of Eohippus in reverse—to one day become a nervous, fox-size animal scurrying timidly through the grasses of some future clime? Most people reject that thesis. It is not reversible; for the great degree of adaptation that Eohippus has accomplished, and for that attained by the thousands of other ancient species, the concept of evolution is useful.

The Import

The Strands concepts can be used to teach any subject matter. In the National Park Service environmental interpretation has been made more effective, lucid and palatable through the thematic use of the Strands.

People whose natural educational orientations are reinforced through the deliberate, skillful use of Strands concepts can more easily acquire and more fully exercise a personal environmental ethic. They will more creatively and precisely contribute to the placement and maintenance of the collective fulcrum of their society. When that is well achieved, we may be said to possess a national environmental ethic.

Mr. Hinsdale is an Environmental Education Specialist with the National Park Service's Pacific Northwest Region.

A Process Approach to Education

by Audrey Dixon

NEED

The National Environmental Education Development (NEED) Program of the National Park Service is a *process* approach to education. Through use of the curriculum-integrating materials developed for the program by the National Park Foundation, school children from kindergarten through eighth grade get to look at the world through the eyes of discovery, and are helped to gradually expand their frames of reference for dealing realistically but flexibly with *their* total environment. As awareness pushes the students' boundaries of understanding outward, they learn that nothing is static, that all is in movement; everything is process. They are helped to see that, although they live on a planet that is essentially as closed a system as that of a space-ship that might be orbiting the same sun, their worlds for discovering process are limitless.

This discovery is made possible because NEED is multi-disciplinary, sidesteps the usually compartmentalized educative system which deals mainly with discrete bits of information, uses both indoors and outdoors as a classroom, and employs the Strands conceptual approach—a way of seeing, listening, comparing, understanding . . . and deciding . . . even during the very early elementary years. The concepts used in the Strands conceptual approach are:

- Similarity and Variety
- Patterns
- Interrelationship and Interdependence
- Continuity and Change
- Adaptation and Evolution.

When presented "en toto," they can readily be seen as a systems approach in environmental education.

Since the materials developed are mainly for use in schools, they do not ignore the fact that they must meet the schools where they are now if they are to be used. And right now, most schools have fixed curricula within areas labelled "social studies," "science," "math," "humanities," and "language arts." Even



at first glance one can see that the set of Strands listed above can be used to teach or interpret *any* subject, yet in a way that helps avoid unnatural fragmentation.

The NEED Program strives to awaken or deepen a conscious awareness of all environments within each child it touches. It hopes to lengthen that awareness to understanding, and the understanding to a life of commitment to values that will enhance the quality of life for most people.

Thus far, this environmental education program has published materials in the formats of students' classroom books and outdoor books, and teacher's guides for grades three through six; it currently has a Teacher's Resource Guide for the kindergarten through second grades due for release June 16th. Additionally, in the Fall of 1975, a series of six filmstrips will be released for the seventh and eighth grades. Although produced with the school student in mind, the lessons and activities may be used in workshops and in park interpretation programs as well.

NESA

While the NEED program's thrust is mainly through written materials, the National Environmental Study Area (NESA) program of the National Park involves the identification of environmental study areas with active exemplary programs in environmental education to be used by

schools and other interested groups.

Study areas might include: a plot of land on school grounds, a city dump, aquatic environment (including sewage disposal stations), a forest, a prairie, a meadow, a historic site, an archeological excavation. The possibilities are endless, but those most valuable include the interfaces of two ecosystems. Each NESA serves as a resource base for students to explore and learn about the environment and their relationship and responsibility to it. Special site materials are developed by park and school personnel to deepen student awareness of the many elements within the study area.

NEEL

The National Environmental Education Landmark (NEEL) program, also administered by the National Park Service, has been organized to recognize superior local, state and private NESA.

Ms. Dixon is an Environmental Education Specialist with the Division of Interpretation, National Park Service in Washington, D. C.

The Scope of Environmental Education

by Bruce McHenry

How many times have you been faced with a surprise visit from a yellow school bus filled with children eager to explode out of the bus as if they were going to devour your park?

Following this restless crew one usually finds several harried but well-meaning teachers and parents eager to make this unscheduled venture into the park a meaningful one.

The typical solution is that handy 10 minute film or slide show on the park. But then what? For over 30 years the big yellow school bus has been arriving at our parks unannounced and for years we have been showing groups of school children into audio-visual rooms for quickie presentations. Then we usually give the unscheduled school group the standard park tour. And in the process, many of us treat our young visitors as less than regular "park visitors."

Environmental education is an approach to improving the park experiences taken home by the children of the yellow school bus, as well as all the visitors to the park.

In approaching the problem of providing a meaningful park experience—it's important to look at:

1. The impact on park resources.
2. The affect of environmental education on students.
3. The relationship between teachers and park personnel.

How do we treat park visitors and protect resources at the same time? In the mid-60's, many people in the National Park Service began to examine our park resources in light of visitor impact. At the same time, we discovered that the lowest use of our areas occurred during mid-week periods of fall, winter and spring. By spreading visitor use, we found that park resources suffered less damage. Thus, we encouraged schools to use parks as classrooms during these slack periods.

About the same time, the public began using words like environment, ecology, and awareness. Some of the people in the National Park Service began to examine the management of our parks in relationship to our environmental practices.

Those of us in the parks at the time put these two sets of ideas together and found that by redesigning the use patterns to fill in the mid-week season with school groups and by utilizing the new concepts of environmental awareness, we have a more lively school program than ever before.

By the late '60's, National Park Service areas began to develop special environmental education outreach programs to bring new meaning to the park experience.

Today there are hundreds of schools and other institutions practicing environmental education. Our relationships with students, teachers and community leaders have started the process of establishing good environmental ethics.

Let's examine our relationships with various members of school groups visiting parks.

The student is an important park visitor—tomorrow's responsible citizen. Young people have demonstrated time and again their eagerness to see, feel, smell, taste and listen to our parks. They are more active than passive. They learn best by discovery. A trip to a park can highlight environmental awareness which leads to understanding, which in turn leads to commitment for a better environment. The relationships which students forged with these resources become a strong foundation for their future and ours. No park can afford to be without this young constituency.

The great earth movement of the early 1970's apparently peaked as we became more involved in building our individual environmental education programs in the parks. Some may think it is past, but I can assure you that it isn't. There are hundreds of schools and other institutions involved in environmental education today—some of the many programs are described in the pages of this issue.

Teachers and community leaders can be great multipliers of experience and guides to discovery. In 1967, many park people began working with teachers. First, we assured ourselves that we were not educators, but rather resource managers. This was important because we were asking teachers to teach and we wanted to provide them with resources to use as outdoor classrooms.

We learned that if we sold the idea of

environmental education programs to the Superintendent of Schools first, the cooperation up and down the line was greater. We learned that budgets are important to school administrators. We learned that, by using that individual in every school district who works within the school administration and has a strong interest in parks and environmental education, programs were developed more easily. We also found that by using teachers workdays for workshops in the parks, many more teachers volunteered to attend. We offered teachers credits towards academic degrees as incentives. In short, we became partners with school systems in designing environmental education as part of their curricula.

Teacher workshops in our parks became the most important activity we conducted in environmental education: a successful workshop motivates teachers to put their professional skills to work.

A program of pre- and post-site activities strengthens the field trip experience so it is not just "another trip." Once teachers have committed their own time and energy to this type of program, the chances are they will repeat it year after year. They then become the great multipliers. By carefully designing the system, you can develop a cadre of experienced teachers and teacher aides who can design and operate their own programs.

The same approach taken with teachers can be applied to workshops with other community and group leaders and park personnel. This further spreads the multiplier effect.

Workshops for park personnel on all levels are, I believe, crucial to the success of any environmental education program. The Southeast Regional Office of the National Park Service has recently supported

Cape Cod

region-wide efforts to conduct environmental education. These workshops for park personnel, island rangers, men, sub-district rangers, clerks, supervisors and administrators—the people who make the parks work—all have opportunities to become interpreters for the park.

The approaches to environmental education are vast. In this next section of this special issue of *TRENDS*, we will sketch the NEED program as it has been implemented in Spokane and Kirkland, Washington, and in Cape Cod National Seashore; the NESA programs at Shenandoah and Everglades National Parks and Delaware Water Gap National Recreation Area, and a number of other diverse efforts to bring environmental education to the public.

While most of the examples presented here have developed under the auspices of the National Park Service, the basic concepts are ones which can easily be adapted and applied to state, regional and local parks and recreation areas to add an important dimension to the public's interaction with the environment in all milieus—urban, suburban and rural.

The preceding pages of this special issue have touched on the basic philosophic approaches to environmental education. The programs described in the following pages will not focus on the individual philosophies behind each program but rather attempt to briefly sketch the essential elements of the individual programs.

These programs only scratch the surface of the vast potential for environmental education efforts in this country. In the next decade, I believe we will see a real blossoming of environmental education efforts in parks, in schools, and in private and public institutions concerned about our environment and the public's understanding of it.

Mr. McHenry is an Environmental Education Coordinator with the National Park Service's North Atlantic Region.

Cape Cod National Seashore in Barnstable, Massachusetts, operates two active environmental education programs for school children from all over New England. The purpose of both programs is to assist schools in developing their own environmental education programs based on the models developed through the NEED and NESA programs.

The Nauset Coast Guard Station serves as the focal point of one of the Cape Cod programs, operating as a classroom and an overnight accommodation for participating school classes. The program is so popular that it is in full operation, regardless of weather, from September through May and since its inception in 1969, has attracted over 175 classes of grades five through eight.

The Nauset program draws on the resources of five National Environmental Study areas designated within the Seashore. The program thrust is directed toward teachers—to create within them an environmental awareness based on the NEED program (see page 18 for a more

detailed description of the NEED program) and to give them the experience of putting this program's concepts to use in the field and in their classroom. Teacher materials and slide-text programs for use in pre-site orientation for the NESA sites and the overall NEED program at Cape Cod have been developed.

An example of the kind of activity students in the Nauset program enjoy is the Thursday trips to the wharf at Provincetown, where a local resident and former fisherman, now on staff as a park technician, shares with students his knowledge of commercial fishing and its methods. He talks with students about offshore foreign fishing fleets, marine ecology, and pollution, and weaves the topics together to make a coherent whole—environmental education. The site and the speaker both bring reality and depth to the experience. Special curriculum materials for pre-site background information on marine



John Muir Elementary School

fishery resources are being developed to further enhance this experience.

At the Falmouth-Harwich-Yarmouth NEED Collaborative, the approach is different. The Seashore, through a special use permit, has made a facility available to non-park school system personnel, to operate their own environmental education program.

The vast resources of both the National Seashore and nearby educational opportunities are available to both programs and make the experience of participating a rewarding one. For example, the Eastham Shellfish Warden meets classes in a salt marsh. There he presents a shell-fishing demonstration and discusses the ecological values of salt marshes, and the marshes' importance to the larger ecosystem of the area. Classes frequently visit the nearby Cape Cod Museum of Natural History where the students' understanding is enlarged by the superimposition of that institution's own environmental education programs onto the one received at the Seashore. Other resources near the Seashore include: the nature trails at the Massachusetts Audubon Society's Wellfleet Bay Wildlife Sanctuary, the Provincetown Museum, and a hike to Henry Beston's 'Outermost House'—an environmental literary experience.

Both Cape Cod programs offer a total environmental education experience—which includes awareness and understanding of the individual's role in the environment and its resources—ecology, economy, history, fishery technology, pollution, local culture and international politics.

The cultural and educational values of the interrelationships developed between students and teachers participating in these programs is another valuable story in itself.

TRENDS wishes to thank Dick Cunningham, Chief of Interpretation, Cape Cod National Seashore, for providing information for the above article.



A good example of a dynamic environmental education program is under way at the John Muir Elementary School in Kirkland, Washington near Seattle. This is a school which prides itself on its progressive approach to education, using a computer management system, team teaching and the cluster concept of grouping.

The 750-pupil school is a certified intern teacher training institution where approximately 14-18 graduating student teachers a year receive their practical experience prior to being state-certified. The school has brought the NEED program philosophy into the classroom.

It began when the school's 55-member faculty participated in a NEED workshop several years ago. In response to the enthusiasm for the program, Principal Don Walker formed a committee of certified teachers and trainees to develop and implement the program. They call themselves the Muir Environmental Education Team (MEET) and in just a short time, wrote objectives on levels four through six to accompany NEED materials. "It is our goal," says MEET chairman Barclay Kruse, "to move environmental education

out of the 'frill' area of education right into the mainstream."

The group has not only taken the NEED materials and adapted them to their own classroom setting, it has created learning kits pertaining to the resources found on their school grounds.

On the corner of the John Muir School campus are approximately two acres of land lying contiguous to another five acres belonging to a public utility company. Woods, a steep gradient here and there, and a variety of plant and small animal life are available. The site has been plotted and inventoried. The development of learning units for this resource, as well as development and refinement of the entire curriculum, will be an on-going part of the routine maintenance of the John Muir management system.

TRENDS wishes to thank Glenn L. Hinsdale, Environmental Education Specialist, National Park Service, Pacific Northwest Region for providing information for the above article.

Ragged Ridge Center

The Ragged Ridge Center of Whitworth College in Spokane, Washington, a 720-acre heavily forested area, serves as an environmental education facility available to a broad range of area schools, colleges, and universities.

The NEED Program, introduced to the Center by National Park Service personnel, has expanded local participation in the development of a comprehensive environmental education program. At least three major institutions of higher learning and more than a dozen local, state, federal and private agencies and organizations are assisting the Center in the technical aspects of the design and development of this program. In addition, they are providing research services for taking inventory and interpreting the educational resources on the Center's land.

At the same time, Whitworth College has become a training center for public school instructors in NEED concepts with assistance from the National Park Service Regional Office staff. The instructors at the sessions developed a curriculum manual with a comprehensive statement about their approach to environmental education plus one hundred specific lesson plans based on the NEED concepts.

The College has integrated environmental education training courses into its overall curriculum. At a recent session of one of Whitworth's environmental education courses, the State's Environmental Education Coordinator introduced a new publication, "Encounter with the Northwest Environment—Rural and Urban," using the STRANDS concepts (See p. 15). There is a good relationship between the resources of the Center, the College and the state's environmental education program.

It appears that this is the first time in the history of the NEED program that an institution of higher learning has provided professionally written curricula and offered college-level credit courses of instruction in the application of the Strands concepts to the integration of existing elementary and secondary school curricula.

The best statements of the philosophy and objectives of the Ragged Ridge Center occur in the curriculum manual:

"Environmental awareness education uses the sum total of a person's surroundings as a teaching/learning vehicle. All of life is therefore used whether learning is in the natural sciences, social studies, or humanities areas. Interrelatedness is stressed within and between disciplines . . .

" . . . It becomes a process for developing awareness, understanding, and value through curriculum that puts the world back together again.

The program is now self-sustaining. It is the intent of President Lindaman and the Whitworth College Board of Trustees that Ragged Ridge be managed and recognized as a national model for regional environmental education resources.

TRENDS wishes to thank Glenn L. Hinsdale, Environmental Education Specialist, National Park Service, Pacific Northwest Region for providing information for the above article.

Shenandoah

While many environmental education programs through parks are student related, the efforts at Shenandoah National Park concentrate exclusively on teachers. The purpose of the program is to provide training and resource materials for on-site and off-site use, to encourage and assist schools in developing their own programs, and to bring environmental education into the park's total interpretive effort.

The thrust toward teacher training evolved from earlier heavy demands on park interpretive personnel for off-site programs and park visits. It became impossible for the staff alone to meet the needs of the communities surrounding the park.

Working with the leaders of thirteen local school districts, park officials helped organize an Environmental Education Council made up of representatives from each school district. For many, it was the first time they had joined together in any kind of cooperative venture.

In 1972, the Council received a \$10,000 grant from the Office of Health, Education, and Welfare, under the Environmental Education Act. This money, plus contributions from the schools and the Shenandoah National History Association, enabled the Council to hire a full-time director to coordinate its operation.

Through the Council, the environmental education workshops for teachers took shape and now are conducted at one of the park's three NESA locations. The emphasis is on letting the teacher teach. Participants go through a series of tasks, role playing, problem-solving and other awareness activities which they later use with their students. Special teacher resource guides are available for each area including a site description, use suggestions and a list of resources available both in and out of the park.

In its three years of operation, the Council has produced an eleven-part video-tape series entitled "Environmental Methods." This is a series of teacher training programs designed to show how teachers of various disciplines can incorporate environmental education activities into their curricula. The programs all convey





Shenandoah's view of environmental education—the park is inextricably linked to the man-made world beyond its borders.

The 20-minute video tapes include an overview of environmental education for both lower and upper elementary school students, individual treatments of environmental education as it relates to vocational education, fine arts, history, physical sciences, natural sciences, mathematics, social studies and language arts. The tapes are made available free to teachers as

part of a wide range of resources in a library maintained by the Environmental Education Council.

Teachers can call on the resources of the library and borrow materials for use in the schools. Individuals interested in obtaining copies of the training video-tape cassette presentations on ¾-inch tape should write to: Environmental Education Council, Shenandoah Natural History Association, Shenandoah National Park, Luray, Virginia 22835.

TRENDS wishes to thank Paul Lee, Environmental Education Specialist at Shenandoah National Park for providing information for the above article.

Most people do not think of the Everglades National Park as a semi-urban location, yet it sits directly adjacent to the Greater Miami metropolitan area. The one-million acre park has developed a unique cooperative relationship with the Dade County school system to bring select students and teachers into the park setting. Using National Environmental Study Areas for day-use and National Environmental Education Development areas for overnight use, students in grades four through six have been exposed to a year-round program of environmental education which has had a dramatic spill-over effect in the schools.

Teachers participate in workshops held at NESA sites. Introductory and advanced workshops give teachers the tools they need to share the environmental experiences of the park with their students. Workshops are scheduled for regular work days when students are not in school and are held with permission of the school board.

The great demands on the park's resources and staff require a reservation system for the environmental education program. Only groups whose teachers have been through introductory or advanced training workshops can participate in the Everglades program. Another important factor in the smooth administration of the program is the park's responsibility for busing students to the Everglades. Each year a special fund taken from the park's overall budget is matched by the city. Therefore, teachers using these buses in this cooperative program have the advantage of advanced planning for their trips to the park.

Other teachers who have not participated in the workshops are encouraged to come to the park to lead their own environmental education programs.

Everglades' planned environmental education programs include a variety of activities designed to create in the students a special awareness of their environment. During slough slogging trips, for instance, students learn to confront and overcome their fears of the swamp areas; canoeing trips demonstrate an alternate—and quiet—method of trans-



portation; snakes and other wildlife species are available so that pupils can make contact with the unusual in their environment.

Since another step in environmental awareness involves communications, students take part in campfire programs by writing and performing skits, composing music, or using other art forms to describe their observations of the environment. Total freedom to express their feelings is encouraged in these evening programs and the students are urged to communicate the values they've learned at the park to their friends, classmates, and parents on their return.

Environmental education in the Everglades is an outdoor sensory program which demonstrates to the students how

humans, animals, plants, and their environment are all intimately interrelated. The program strives to get students submerged in the Everglades so that they not only see it but also feel, hear, smell, and taste it.

TRENDS wishes to thank O. Frank Wilson Jr., Environmental Education Coordinator at Everglades National Park for providing information for the above article.

